Antenna Principles

Two Formulas

300,000,000 meters per second / Freq Hz cycles per second

This formula gives the Wavelength in meters for a given Frequency in Hz. Wavelength is the key to understanding antenna design and performance.

487 / Freq MHz

This formula gives the length in feet for a half wave antenna (Dipole) for a given Frequency in MHz.

Frequency and Wavelength

BAND Meters	**FREQ** MHz	**WAVELENGTH** Feet	**1/2** Feet	**1/4** Feet
160	1.8	546.8	273.4	136.7
80	3.5	281.2	140.6	70.3
60	5.3	185.7	92.9	46.4
40	7.0	140.6	70.3	35.2
30	10.1	97.5	48.7	24.4
20	14.0	70.3	35.2	17.6
17	18.1	54.4	27.2	13.6
15	21.0	46.9	23.4	11.7
12	24.9	39.5	19.8	9.9
10	28.0	35.2	17.6	8.8
6	50.0	19.7	9.8	4.9
2	144.0	6.8	3.4	1.7

References

Books:

Basic Antennas (ARRL)
The ARRL Handbook (ARRL)
The ARRL Antenna Book (ARRL)

ARRL Continuing Education Program: www.arrl.org/cce

Antenna Modeling: EC-004
Antenna Design and Construction: EC-009

Internet:

American Radio Relay League:
Technical Information Services: www.arrl.org/tis

Antenna Modeling Software (W7EL): www.eznec.com - Information on EZNEC Software plus free demo program

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